

Farmington, 440 feet; Kennebec at Bingham, 450–500 feet. The actual heights are probably somewhat less than these.

In correlating the stages of the glacial period, Clapp¹ describes the Leda clays as extending through the St. Lawrence valley and south along the coast as far as Boston. Although the clays at Cambridge, Revere, and Lynn, and other places near Boston do not contain fossils, they probably belong to this class. "In New Hampshire they are finely developed. . . . In Maine they extend along the coast from Kittery to Eastport, forming many low plains near the sea and extending up most of the river valleys. In York County they extend fifteen miles or more from the coast. In the valley of the Presumpscot River they are found nearly to Sebago Lake.

. . . Farther north similar clays occur at higher elevations as far as Sandy River at Farmington; but the clays above Skowhegan may possibly not be marine as fossils have not been reported in them. The marine clays are abundant along Sheepscot River in Lincoln County, and are widely distributed in the vicinity of Rockland, Knox County. They extend up the Penobscot to beyond Oldtown."

(*To be continued.*)

REHDER'S MANUAL OF CULTIVATED TREES AND SHRUBS²—Rehder's *Manual* is going to be one of the most frequently consulted reference-books. It is a handsome compendium of all the trees and shrubs which have been or are likely to be cultivated in temperate North America. Consequently, bringing together in compact form descriptions and keys covering woody plants of many geographic regions, it is bound to be as indispensable to the working botanist as to the cultivator of trees and shrubs. Every student of plants is faced, especially in the neighborhood of cities and parks, with the difficulty of quickly identifying many of the planted species. This difficulty is now removed. Comparison with Sargent's *Manual* of the native trees of the same area makes the importance of Rehder's book apparent. Thus Sargent describes 9 species and 1 variety under *Abies*; Rehder has 38 species and more than 30 varieties. In *Betula* Sargent has 10 species and 1 variety; Rehder has 38 species, 27 varieties and many hybrids. In *Fraxinus* Sargent has 16 species; Rehder 42 species and 35 varieties; and so on through hundreds of genera; and, of course, the shrubby genera (even down to such diminutives as *Chimaphila*) are not included by Sargent.

¹ Clapp, F. G. Complexity of the Glacial Period in New England. Bull. Geol. Soc. Am. 18: 505–556. 1908.

² Alfred Rehder. *Manual of Cultivated Trees and Shrubs Hardy in North America*. 930 pp. New York. The Macmillan Co. 1927.

The book, naturally, is worked out on the lines already familiar in Rehder's prolific publications. Both generic and specific segregation often go farther than some systematists will be inclined to follow; but in other cases the treatments are refreshingly conservative. To illustrate these points: Rehder maintains *Xolisma* as a genus distinct from *Pieris* because he finds that in the species he treats as *Xolisma* the anthers are not awned, while in *Pieris* they have reflexed awns; but, as Matthews and Knox¹, after a detailed study of many species, assert, "the distinction between filamentous and antherine appendages, as employed by Rehder, has no real existence. . . . as generic characters between *Pieris* and *Xolisma* they have no real value."¹ On the other hand, following the most conservative systematists, Rehder keeps *Vaccinium* intact (including *Batodendron*, *Vitis-Idaea* and *Oxycoccus* along with § *Euvaccinium* and § *Cyanococcus*). In other words, the book very definitely represents Rehder's own views and other botanists may not at once accept all his decisions.

In nomenclature the author follows in general the International Rules, so that most of the generic names agree with those used in Bailey's *Standard Cyclopedia of Horticulture* and his *Manual* and in the 7th edition of Gray's *Manual*. A noteworthy departure "is the use of the term 'var.' for any subdivision below the species, regardless whether it was originally described as subspecies, varietas, forma, lusus, etc. In monographs and similar taxonomic publications it is no doubt desirable, and in the case of polymorphic species often necessary, to distinguish subdivisions of different rank and subordinate to each other, but for the designation of any form below the species, three names should be sufficient. . . . Double citation is not employed in this book; this is often used to indicate that in a combination of names the name of the species or variety did not originate with the author, but was taken from an older combination.

. . . Though double citation indicates that a species or variety had been described before, it makes no difference in regard to the responsibility for the accepted combination. . . . As the authority of varietal names the author who first placed the name under the correct and accepted binomial . . . is cited, regardless whether he published it as a subspecies, variety, forma, lusus, etc."

It is unfortunate for a professed follower of the International Rules thus to violate the Rules; but it is still more to be regretted that a tremendous misrepresentation of values and of facts and a needless and far-reaching confusion in nomenclature should thus be promulgated. Surely, a single freaky clump with dissected foliage or an albino (legitimate formae) are not of the same taxonomic importance as a constant and wide-ranging plant which has consistent subspecific or varietal characters as well as an individual range. Yet by Rehder's merging of the lesser categories the taxonomic

¹ Matthews & Knox, *The Comparative Morphology of the Stamen in the Ericaceae*. Trans. and Proc. Bot. Soc. Edinb. xxix. 258 (1926).

values are completely confused. One illustration will suffice. *Betula nana*, var. *Michauxii* so far differs from *B. nana* as to have been separated by Opiz as a monotypic genus, *Apterocaryon*; and it is the only representative of the Eurasian *B. nana* in North America (except in Greenland and perhaps arctic Alaska). *Alnus incana*, forma *tomophylla* Fern. was based on a single eccentric clump of our common alder with "cut" leaves. Taxonomically and geographically it is almost negligible; yet, treated by Rehder as "var. *tomophylla* Fern." it is fallaciously raised to a rank equivalent to that of *Apterocaryon* or *Betula Michauxii* or *B. nana*, var. *Michauxii*. This sort of thing may be convenient, but it cannot appeal to most systematists. Not only are profound scientific facts distorted in such cases, but by the citation of the author of *Alnus incana*, forma *tomophylla* as the author of the variety, another perversion of the actual fact occurs. The authors of VAR. *tomophylla* are, of course, (Fern.) Rehder; and one cannot but wonder at the reasoning of an author who under the specific combinations rejects the parenthetical authority, but in case of all names under the species cites, when the category has been altered, only the parenthetical authority (without parenthesis). The amount of checking by botanical users of the book necessary to determine the correct authors of the thousands of so-called varieties is appalling!

In one other matter it is hoped that in a future issue the author will find it possible to make the book more satisfactory. This is the statement of natural ranges. For purely horticultural purposes the natural range of the species may be unimportant; but, when a range is stated, it is not too much to wish that it should be broadly correct. *Betula nana*, var. *Michauxii* may again serve as an illustration of my point. Rehder limits it exclusively to "Lab[rador]." But, when it was originally published, as *B. Michauxii* Spach, Spach distinctly gave its range: "America borealis et insula Terrae Novae," and there are certainly plenty of Newfoundland specimens in the herbarium of the Arnold Arboretum. Again, *Dryas Drummondii* was cited by Torrey & Gray (1840) from Anticosti and it has repeatedly been collected and listed from there, the Gaspé Peninsula and the Mingan Islands, all in Quebec (noted from Quebec 15 times in the volumes of RHODORA), and it is included in both editions of Britton & Brown. There are good specimens of it from Quebec at the Arnold Arboretum; consequently Rehder's restriction of its range to "Arct. Am. s. to Mont." is difficult to understand. (Incidentally, the species is unknown in Arctic America). Again, after Rehder & Wilson had described from China and northwestern America *Arctous alpina*, var. *rubra* it was pointed out¹ in this journal that the characters relied upon to separate *Arctous* from *Arctostaphylos* were not stable and that *Arctous alpina*, var. *rubra* occurs not only in China and northwestern America, but in western Siberia and in

¹ RHODORA, xvi. 21-33 (1914).

eastern Quebec; and it has subsequently been collected in and reported from Newfoundland. The author of the new *Manual* surely knew of the discussion above cited, and it is unfortunate that in the statement of range of *Arctous ruber* all mention of eastern North America should be omitted.

These matters in which many botanists will not agree with the author of the *Manual* are such as are likely to find expression in the work of any individual author, particularly if his viewpoint is that acquired from working with specially selected and often too sharply contrasted representatives in a museum or a living collection. In the nursery the minor forms are often more interesting than the true geographic varieties and subspecies and even than distinct species; but from a taxonomic and phytogeographic standpoint, they are only of minor interest and their elevation to superior rank is misleading. In spite of these somewhat academic criticisms, it should again be emphasized, however, that Rehder's book is one which will be needed by every working botanist. To the nurseryman, horticulturist and amateur gardener it will be indispensable.—M. L. FERNALD, Gray Herbarium.

THE DATE-PALM AS A RUDERAL PLANT IN MASSACHUSETTS.—Like all growing cities, Worcester, Mass. maintains a number of dumping grounds. While crossing one of these on Sept. 13, 1915, the writer noticed a number of peculiar-looking plants growing all about. On digging up several of the plants, the unmistakable stone of the Date-palm (*Phoenix dactylifera* L.) was found, still attached to the seedlings.

These seedlings consisted of two erect, rigid, narrow, strongly-veined leaves, growing from an underground stem. The longer of the leaves were from 3 to 9 inches in length; the underground stems were two or more inches in length; and the white root system, striking deep into the ashes which composed the dump, were 4 or more inches long. The roots all broke before they could be traced to their ends. The characteristic date-stone was connected to the lower end of the stem at about the middle of the inner or grooved side.

These plants have been collected by the writer in 1915, 1916, 1921, 1923 (twice), 1925 and 1926. The original stand contained about 50 plants; these have materially diminished since then. The past summer, which was neither very hot nor wet, brought out less than a dozen plants. In drying the leaves roll very closely lengthwise, break off and disappear during the winter.